UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/688,335	10/16/2000	Nicholas G. Duffield	03493.00054	9806

7590   02/06/2004

Banner & Witcoff Ltd
1001 G Street N W
Washington, DC 20001-4597

EXAMINER
LAM, DANIEL K

ART UNIT	PAPER NUMBER
2667	6

DATE MAILED: 02/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	**Applicant(s)**
Office Action Summary	09/688,335	DUFFIELD ET AL.
	Examiner	**Art Unit**	
	Daniel K Lam	2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>16 October 2000</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-34</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-7,10,12-20,23 and 25-34</u> is/are rejected.

7) ☒ Claim(s) <u>8,9,11,21,22 and 24</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s). _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a
> whole would have been obvious at the time the invention was made to a person having
> ordinary skill in the art to which said subject matter pertains. Patentability shall not be
> negatived by the manner in which the invention was made.

2. Claims 1-7, 12, 13, 15-20, 25, 26, and 34, are rejected under 35 U.S.C. 103(a) as being

unpatentable over U. S. Pat. No. 6,473,400 issued to Manning in view of U. S. Pat. No.

5,949,786 issued to Bellenger.

Regarding claims 1 and 12, Manning discloses a method and a transmission system for

computing statistics relating to the flow of Internet data packets comprising:

- Port 1 (network traffic sampling point) for receiving data packets to be sampled.

  See fig. 1.

- Sampler 9 (sampling packets; a processor for computing a sampling function,

  responsive to the sampling function, for determining packets to be sampled) for

  sampling received data packets utilizing address data within the header of the

  received packet (function of an Internet protocol packet content). See fig. 1, col.

  3, lines 46-50, and col. 4, lines 23-25.

However, Manning does not disclose the limitation of generating a packet label for each

sampled packet.

But Bellenger discloses an apparatus with a Hash Generator 105 that computes a hash value based on some control fields within the incoming frame. See fig. 2, col. 3, lines15-18, and col. 4, lines 57-60.

Therefore, it would have been obvious to those having ordinary skill in the art, at the time of invention, to generate a packet label for each sampled packet so that a particular flow of traffic can be identified efficiently and quickly by implementing simple hash code to access routing table which contains a label for identifying the flow as taught by Bellenger. See col. 3, lines 9-11.

Regarding claim 25, Manning discloses

- A packet memory 5 (an input buffer for temporarily storing incoming data packets during sampling) for temporary stores the received packets. See fig. 1, and col. 3, lines 34-35.

- Sampler 9 (a sampling subsystem for determining which packets to sample) for sampling received data packets. See fig. 1, and col. 3, lines 46-50.

Furthermore, Bellenger discloses an apparatus with a Hash Generator 105 (generating a packet label for each sampled packet) that computes a hash value based on some control fields within the incoming frame. See fig. 2, col. 3, lines15-18, and col. 4, lines 57-60.

Regarding claim 34, Bellenger discloses

- A method using a Hash Generator 105 (generating a label for a packet comprising the step of determining a hashing function to generate a practically unique label for a

packet selected for sampling) that computes a hash value based on some control fields

within the incoming frame. See fig. 2, col. 3, lines15-18, and col. 4, lines 57-60.

- Using a 64-bit hash code so that the probability of collision can be avoided (selected

    packet for sampling will not collide with another similarly labeled packet at an

    expected packet rate within an expected period of life) during the entire sampling

    process. See col. 9, lines 19-30.

Furthermore, Manning discloses a Sampler 9 (for a packet selected for sampling) to

extract packets. See fig. 1, and col. 3, lines 46-50.

Regarding claims 2, 3, 15, and 16, in addition to disclose the limitations regarding claims

1 and 12 in the previous paragraphs, Bellenger further discloses the Internet protocol

packet contains DEST 410, SOURCE 411, MISC 404, IP HEADER 412 and 413 fields

(Packet content is dependent upon substantially invariant data; claims 2 and 15. Includes

high entropy data fields; claim 3. And includes an invariant data field; claim 16) that can

use to generate an identifying tag for the incoming frames. See fig. 4 and col. 5, lines 43-

61.

Regarding claims 4 and 17, in addition to disclose the limitations regarding claims 2 and

15 in the previous paragraphs, Bellenger further discloses a variable data field 406

(excludes a variable data field) is not included in the invariant data. See fig. 4 and col. 5,

lines 50 to 51.

Regarding claims 5 and 18, in addition to disclose the limitations regarding claims 3 and 15 in the previous paragraphs, Bellenger further discloses a CHECKSUM 407 field (excludes at least one of a service type field, a header checksum, a version field, and a header length field) is not included in the invariant data. See fig. 4.

Regarding claims 6 and 19, in addition to disclose the limitations regarding claims 2 and 15 in the previous paragraphs, Bellenger further discloses the protocol type (a low entropy data field) is included in the invariant data for generating the hash. See col. 7, lines 24-30.

Regarding claims 7 and 20, in addition to disclose the limitations regarding claims 1 and 12 in the previous paragraphs, Bellenger further discloses using a small 32-bit hash code (packet label has a length determined to be as small as possible with avoiding a collision) with a resulting extreme small probability of collision. See col. 9, lines 7 to 19.

Regarding claim 13, in addition to disclose the limitations regarding claim 12 in the previous paragraph, Manning further discloses a packet memory 5 (a packet buffer for temporarily storing incoming data packets during sampling) for temporary stores the received packets. See fig. 1, and col. 3, lines 34-35.

Regarding claim 26, in addition to disclose the limitations regarding claim 25 in the previous paragraph, Manning further discloses an ANALYSER 6 (labeling function) and

a SAMPLER 9 (sampling function) subsystems are operating in parallel. See fig. 1, and

col. 3, lines 41-44 and lines 46-50.

3. Claims 10, 14, 23, and 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable

over U. S. Pat. No. 6,473,400 issued to Manning in view of U. S. Pat. No. 5,949,786

issued to Bellenger in further view of U. S. Pat. No. 6,108,782 issued to Fletcher et al.

Regarding claims 10, 14, 23, 27, 29, and 31, Manning and Bellenger disclose the

limitations regarding claims 12 and 25 in the previous paragraphs. However, neither

Manning nor Bellenger discloses

- The method further comprising the step of transmitting the generated label to a

  measurement system (claim 10).

- Providing an output to a measurement system of labels for only sampled packets

  (claim 14).

- A data transmitter for transmitting a plurality of labels and data to a measurement

  system as an IP packet (claim 23).

- At ingress, intermediate, and egress routers, comprising a data transmitter for

  transmitting the generated label and packet parameters to a measurement system

  (claims 27 and 29).

- The apparatus further comprising a packet constructer for constructing probe packets

  comprising predetermined invariant data (claim 31).

Fletcher et al. discloses a distributed remote monitoring agent, dRMON, to be installed in a router, to collect performance data and statistics data at distributed points in the network, and then send the data to the measurement system, comprising:

- DTA TDI Driver and NIC driver installed at the routers (at ingress, intermediate, and egress routers, comprising data transmitters) so that performance data and statistics data can be collected at the measurement system. See fig. 4, and col. 2, lines 55-67, and col. 8, lines 37 to 45

- A remote dRMON agent and RMON Engine 110 can be configured to send packets, data, and labels (transmitting generated labels, sampled packets, and data as IP packets) to the collector at the measurement system. See fig. 5, and col. 8, lines 56-67.

Therefore, it would have been obvious to those having ordinary skill in the art, at the time of invention, to installed data transmitter at the ingress, intermediate, and egress routers so that nodal statistic, such as, sampled packets, generated label, and any data of interest, can be collected and correlated by the measurement system having true end-to-end monitoring visibility, among other advantages. See Fletcher et al. col. 7, lines 4-8.

Regarding claim 28, in addition to disclose the limitations regarding claim 27 in the previous paragraph, Manning further discloses a ACCUMULATION TABLE 30 containing Network and MAC addresses 31 and Octet Count 33 (packet parameters comprise a source address, a destination address and a length. See fig. 3 and col. 4, lines 42-47.

Regarding claim 30, in addition to disclose the limitations regarding claim 29 in the previous paragraph, Fletcher et al. further discloses the dRMON Agent includes a time-stamp in the packets sent to the Collector (transmits a time stamp to the measurement system). See col. 12, lines 9-17.

4. Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Pat. No. 6,473,400 issued to Manning in view of U. S. Pat. No. 5,822,520 issued to Parker.

Regarding claim 32, Manning discloses a method for computing statistics for use in packet switching network traffic sampling comprising:

- Sampler 9 (selecting packets for sampling in accordance with a predetermined sampling function) for sampling received data packets utilizing address data within the header of the received packet. See fig. 1, col. 3, and lines 46-50.

However, Manning does not disclose the limitation of altering a predetermined bit position of a packet that is at least practically invariant as a sampling flag to demark a packet selected for sampling.

Parker discloses a function, named, pset, that can alter a predetermined bit in a packet so that a sampled packet can be demarked. See col. 11, lines 36-40.

Therefore, it would have been obvious to those having ordinary skill in the art, at the time of invention, to utilize some automated tools to generate altered packets for sampling such that it can be marked for testing the protocol stack and communication performance tools as taught by Parker. See col. 2, lines 34-46.

Regarding claim 33, in addition to disclose the limitation regarding claim 32 in the

previous paragraph, Parker further discloses using the pset function to alter the protocol

version field. See col. 13, line 46, pset <pkt> ip proto <protocol>.

Allowable Subject Matter

5. Claims 8, 9, 11, 21, 22, and 24 are objected to as being dependent upon rejected base

claims, but would be allowable if rewritten in independent form including all of the

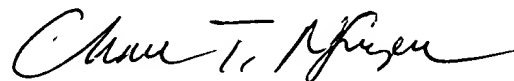limitations of the base claim and any intervening claims.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Daniel K. Lam whose telephone number is (703)
305-8605. The examiner can normally be reached on Monday-Friday from 8:30 AM to
4:30 PM.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor,
Chi Pham can be reached on (703) 305-4378. The fax phone number for this Group is
(703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the Group receptionist whose telephone number is (703) 305-4700.

DKL: dkl
February 3, 2004

CHAU NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600